posal[9] of a quite different theory of metallic conduction. According to his theory, a metal contains atoms which are in the nature of electrical doublets which will orient themselves parallel to any applied electrical field. These atoms are assumed to have the power of ejecting electrons in the same direction as the axis of the doublet and hence the conducting process on the basis of this theory consists in a tendency for orientation of the doublets under the action of the applied electromotive force and a consequent ejection of electrons from one atom to another in the direction in which the current is known to flow. It seems very doubtful to us whether such a theory can be satisfactorily brought into agreement with our experimental results, since it would seem at first sight to be merely an accidental coincidence if the *mechanical* forces which we apply should produce an orientation in the right direction and of the right amount to give the pulse of electricity whose magnitude we have calculated on the basis of the other theory and actually found experimentally.

[1] Colley, *Ann. Physik., Leipzig*, **17**, 55 (1882).

[2] Des Coudres, *Ibid.*, **49**, 284 (1893); *Ibid.*, **57**, 232 (1896).

[3] Tolman, *Proc. Amer. Acad. Arts Sci.*, **46**, 109 (1910); *J. Amer. Chem. Soc.*, **33**, 121 (1911).

[4] Tolman, Osgerby and Stewart, *J. Amer. Chem. Soc.*, **36**, 466 (1914).

[5] Maxwell, *Treatise on Electricity and Magnetism*, 3rd edition (1892), Vol. 2, pp. 211 et seq.

[6] Lodge, *Modern Views of Electricity*, 3rd edition (1907), p. 39.

[7] Nichols, *Physik. Zs.*, **7**, 640 (1906).

[8] Tolman, Osgerby and Stewart, loc. cit.

[9] Thomson, *Phil. Mag.*, **30**, 192 (1915); Richardson, *Ibid.*, **30**, 295 (1915).

Errata: In Mr. T. W. Vaughan's article, pages 98 and 99, the familiar percentage sign (%) was printed in place of the per-thousandths sign (‰), following figures for the salinity; the salinities as printed are therefore ten times too large.